

SECTION 7: DESIGN AND IMPROVEMENT STANDARDS, ROADS

A. General Design.

1. Roads: The arrangement, type, extent, width, grade, and location of all roads shall be considered in their relation to existing and planned roads, to topographical conditions, to public convenience and safety, and to the proposed uses of the land to be served by such roads.
2. Relation to Un-Subdivided Areas: When a new subdivision adjoins Un-Subdivided Land (lands or parcels not created by a recorded subdivision plat) and access to the Un-Subdivided Land must pass through the new subdivision, the subdivider shall provide rights-of-way and construct county standard roads so as to allow suitable access to the Un-Subdivided Land.

This requirement may be waived by the Commission when the Road Department finds that one of the following criteria is met:

- a. Topography or other physical conditions would make it impracticable to provide access to adjacent un-subdivided property.
- b. Adequate public access is otherwise available to the adjacent un-subdivided properties.
- c. When the adjoining un-subdivided property is under public ownership.

This requirement shall be waived by the Commission if the adjoining un-subdivided property is subject to a conservation easement or other legally restrictive covenant as confirmed by the Gallatin County Attorney's Office.

3. Relation to Subdivided Areas: The subdivider shall arrange the roads to provide for the continuation of roads between adjacent subdivided properties (lands or parcels created by a recorded subdivision plat) when such continuation is necessary for the convenient movement of traffic, connection of neighborhoods, effective provision of emergency services, and provision of utilities.
4. Separation of Through and Local Traffic: Where a subdivision abuts or contains an existing or proposed arterial or collector road, the subdivider may be required to provide additional right-of-way, frontage roads, reverse

frontage with a reservation prohibiting access along the rear property line, screen planting, or such other treatment as may be necessary for protection of residential properties and to afford separation of through and local traffic.

5. Distance Between Parallel Rights-Of-Way: Where a subdivision borders on or contains a railroad, limited access highway, canal, ditch, or stream right-of-way, the subdivider may be required to provide a road approximately parallel to and on each side of such right-of-way at a distance suitable to allow for the appropriate use of the intervening land. Such distances shall also be determined with due regard for the requirements of approach grades and future grade separation.
6. Dead-End Roads: No dead-end roads shall be permitted without an approved turn around. Where streets terminate, the subdivider shall provide a cul-de-sac. A "T" turnaround at the terminus may be allowed for two lots or less. Cul-de-sacs and "T" turnarounds must conform to the design specification of Table 1. Where it is planned that a dead-end road will be extended in the future, a temporary cul-de-sac or "T" turnaround shall be provided.

"T" turnarounds shall include two straight backup lengths of thirty feet (30') each, shall have an inside turning radius of twenty-six feet (26'), and shall have an outside turning radius of thirty-eight feet (38').
7. Subdivision Access: To facilitate traffic, the provision of emergency services, and the placement of utility easements, the subdivider shall provide all subdivisions with six (6) or more lots with two (2) means of physical access. The subdivider may be required to provide a second access for minor subdivisions if the following conditions exist: the maximum cul-de-sac length standard is exceeded; the projected Average Daily Traffic (ADT) exceeds 40; or, topography or physical conditions so warrant.
8. Road Design Standards, General: The design standards contained in these Regulations shall apply to all construction, reconstruction, and paving of roads dedicated to the public or within the County maintained road system, and to roads improved through the rural improvement district process. The variance procedure and standards of these Regulations shall apply to the above roads.
9. Bridges: Bridges shall be provided and installed by the subdivider where drainage channels intersect any road rights-of-way.

- a. Bridges shall be built to H2O load standards and approved by the Road Department.
- 10. Culverts: Culverts shall be provided and installed by the subdivider where drainage channels intersect any road rights-of-way. Drainage plans shall accompany road plans for all subdivisions.
 - a. All culverts shall, at a minimum, extend across the entire improved width of the road cross section. The size and length of the culvert and the amount of backfill over the culvert shall be determined by a registered engineer, when determined necessary by the Road Department.
 - b. Each culvert or other drainage facility shall be large enough to accommodate potential runoff from upstream drainage areas. The minimum capacity of a culvert shall be equivalent to a circular diameter of fifteen inches (15").
- 11. Encroachment Permits: The subdivider shall be required to obtain encroachment permits for all access to county roads (Road Department) and state highways (MDT).
- B. Road Dedication.** All roads within and/or providing access to the proposed subdivision shall be dedicated to the public or, if the criteria of this Section are met, be a public road easement. Roads dedicated to the public are accepted for public use, but the County accepts no responsibility for maintaining the same.
 - 1. The easement shall be approved by the County Attorney.
 - 2. The easement shall be recorded with the Clerk and Recorder.
 - 3. The easement shall clearly grant to the public an unrestricted right of ingress and egress from a public road to the property to be subdivided.
 - 4. Documented proof of maintenance of the easement must be provided.
- C. Intersections.** The following requirements apply to road intersections:
 - 1. The intersection of more than two roads at one point shall be avoided.
 - 2. Roads shall be laid out so as to intersect as nearly as possible at right angles and no road shall intersect any other road at less than a eighty degree (80°) angle.

3. Two roads meeting a third road from opposite sides shall meet at the same point, or their centerline shall be off-set at least three hundred feet (300').
4. Any road, which intersects a paved minor collector, or greater road shall be paved for at least one hundred feet (100') from the existing edge of pavement.

D. Names. The following requirements apply to road names:

1. New roads aligned with existing roads shall have the same name as the existing roads.
2. All road names must be approved by the Gallatin County GIS Department prior to preliminary plat approval in order to avoid duplication and confusion with names of existing roads.

E. Definitions. (terms "street" and "road" may be used interchangeably).

1. Alley. A public or private way reserved as a secondary means of access to the rear or side of lots which abut on and are served by public roads.
2. Arterial Roads: A street or road having the primary function of moving traffic with emphasis on a high level of mobility for through movement and the secondary function of providing access to adjacent land. Arterials generally carry relatively large volumes of traffic. Arterials have two to four lanes of moving traffic and should provide only limited access to abutting property. Primary and community arterial roads shall have a minimum ninety feet (90') wide right-of-way and meet such other design standards as may be required by the Commission.
3. Collectors Roads: A street or road having the primary function of serving abutting properties, and the secondary function of moving traffic. Local streets have two moving lanes of traffic, up to two parking lanes, and provide access to abutting properties. (See Table 1 for standards)
4. Cul-de-sac. A street or road having only one outlet for vehicular traffic and terminating in a turn-around area.
5. Dead-End Roads. A road having only one outlet for vehicular traffic.
6. Frontage Access (Service Road). A local or collector street or road, usually parallel and adjacent to an arterial or collector road, which

provides access to abutting properties and control of traffic access to arterials or collectors.

7. Loop. A local street or road which begins and ends on the same road, generally used for access to properties and controls traffic access to arterials or collectors.
8. Minor Roads: The primary function of a minor road is to serve abutting property, with a secondary function of moving traffic. (See Table 1 for standards)
9. Mountainous Roads: Roads located on mountainous terrain. Mountainous terrain has a cross slope exceeding fifteen percent (15%).
10. Non Mountainous Roads: Roads not located on mountainous terrain. Mountainous terrain has a cross slope exceeding fifteen percent (15%).
11. Private Road. A road that is not publicly dedicated or accepted by the county.
12. Public Road. A dedicated right-of-way or public road easement.

F. Access Road Standards. All off-site roads providing access to the proposed subdivision shall meet the following standards:

1. Right-of-way width and construction standards contained in this Regulation shall apply.
2. Subdivision access roads shall be dedicated to the public, or shall have a public easement, which meets the criteria of this Regulation.
3. The subdivider shall improve the access road(s) to the standards in Tables 1 and 2 of these Regulations based on the cumulative number of trips per day generated by the subdivision and existing traffic. For subdivisions, if the access road(s) have one hundred (100) trips per day, or if the subdivision will add traffic that causes trips on the access roads to exceed one hundred (100) trips per day, the subdivider shall be required to improve the access road(s) (as determined by the Road and Bridge Department) to current county standards and pave the road. Trips per day shall be calculated on an average of eight (8) trips per day per single family lot. Multiple single family unit and commercial lot ADT's shall be based on the figures from the most current volume of the Institute of Traffic Engineers (ITE) Manual. Paving shall be done in accordance with the standards in these Regulations.

G. Lot Access.

1. Access: Each lot within a subdivision shall have frontage along a county standard road. Physical access to the building site(s) within the lot shall be provided directly off the county standard road frontage.
2. Plats: All final plats shall contain a statement requiring lot accesses to be built to the standards contained in this Subsection.
3. Lot Access Standards: The top lot access surface shall be a minimum of eighteen feet (18') wide on collector roads and fourteen feet (14') wide on all other roads. Lot accesses shall be built to appropriate County standards, except for the minimum width. Access plans shall be a part of the road plans, which are submitted for review and approval. Where culverts are necessary, in the opinion of the Road and Bridge Superintendent or project engineer, they shall be fifteen inch (15") minimum, approved by the Road Department.
4. Access to Building Site: The subdivider shall provide evidence that the building site within each lot has physical access, and can be accessed by emergency service vehicles.
5. Paved Intersections: Any lot access which intersects a paved collector or arterial shall be paved one hundred feet (100') from the existing edge of pavement, or to a depth approved by the Road Department.

H. Paving Requirements. Roads within subdivisions that will carry greater than 100 trips per day shall be built to the paving standards in these Regulations and in accordance with the timing requirements below. Trips per day will be calculated based on an average of eight (8) trips per day per single-family lot. Multiple single-family unit and commercial lot ADT's shall be based on the figures from the most current volume of the Institute of Traffic Engineers (ITE) Manual.

The subdivider shall meet one of the following requirements for completion of paving. The option shall be specified in the preliminary plat submittal.

1. The subdivision roads shall be paved prior to final plat approval; or
2. Paving shall be completed under an Improvement Agreement. The improvements agreement shall meet the requirements of Section 8.B.g. of these Regulations.

I. Road Impact Fees. A subdivider who receives preliminary plat approval after May 1, 1997, shall pay a road impact fee in accordance with the Road Impact Fee Regulation as specified under Appendix E of this Regulation.

J. Improvement Standards.

1. Subgrade Excavation and Embankment: The subgrade for the roadway shall be finished within a tolerance of three-quarters (3/4) of an inch measured as a vertical ordinate from the face of a ten foot (10') straight edge. Compaction of the subgrade shall be accomplished through methods acceptable to an engineer and Road Department. The subgrade shall be compacted, in place, to ninety-five percent (95%) of the maximum dry density as determined by AASHTO Designation T-180. This compaction is required before any gravel surfacing material is placed on the subgrade. Striping requirements shall be approved by an engineer.
2. Sub Base Gravel: (Pit run selected surfacing.) All sub base gravel material shall be obtained from previously approved pits - a tolerance of five percent (5%) by volume up to the next specified gradation (seven inch (7'') for six inch (6'') max). will be allowed. All oversized material shall not allowed in the top six inches (6'') and shall be removed from the roadway section.
3. Road Construction Standards: All road construction shall meet the standards set forth in the latest edition of the Montana Public Works Standard Specifications, unless otherwise indicated in these Regulations. Any deviation from these standards must be approved by a licensed engineer and the Road Department.

**TABLE 1.
STREET DESIGN STANDARDS**

	ARTERIALS AND COLLECTORS		MINOR ROADS	
TERRAIN*	ORDINARY	MOUNTAINOUS	ORDINARY	MOUNTAINOUS
RIGHT-OF-WAY WIDTH	60'-90'	60'	60'	60'
CENTERLINE RADIUS ON CURVES	300'	150'	150'	150'
TANGENT LENGTH BETWEEN REVERSE CURVES	100'	50'	50'	---
STOPPING SITE DISTANCE	300'	200'	200'	100'
ANGLE OF INTERSECTING CENTERLINES	75°	75°	75°	75°

CURB RADIUS AT INTERSECTIONS	50'	40'	40'	25'
LENGTH OF CUL-DE-SAC	---	---	1000'	2500'
OUTSIDE RADIUS ON CUL-DE-SAC R.O.W.	---	---	50'	50'
GRADE - MAXIMUM	7%	10%	10%	12%
GRADE - MINIMUM	.5%	.5%	.5%	.5%
MAXIMUM GRADE WITHIN 150' OF INTERSECTING CENTERLINES	3%	3%	---	---
MAXIMUM GRADE WITHIN 75' OF INTERSECTING CENTERLINES	---	---	3%	3%

Note: All standards are minimum standards unless noted.

*Mountainous terrain is defined as terrain that has a cross slope exceeding 15%.

**Cul-de-sac roads that provide access to unsubdivided land may exceed this length.

***Grades of over 10% shall not exceed 100' in length.

****Meets emergency turn-around for fire trucks.

TABLE 2.
PAVING AND STREET WIDTH STANDARDS

ADT	FINISHED GRAVEL WIDTH	MINIMUM PAVING WIDTH
NON-MOUNTAINOUS TERRAIN		
8	24'	22'
16	24'	22'
24	24'	22'
32-99	26'	24'
100+	26'	24'

MAJOR COLLECTORS & ARTERIALS	30'	28'
MOUNTAINOUS TERRAIN		
8-40	24'	22'
41-99	26'	24'
100+	24'	24'
MAJOR COLLECTORS & ARTERIALS	30'	28'

TABLE 3.

SUB-BASE GRAVEL						
Pit run selected surfacing shall meet the following gradation:						
	1	2	3	4	5	6
6 inch sieve	100%					
3 inch sieve		100%				
2 1/2 inch sieve			100%			
2 inch sieve				100%		
1 1/2 inch sieve					100%	
1 inch sieve						100%
No. 4 sieve	25-60% for all grades					
No. 200 sieve (not more than)	10%	10%	10%	10%	10%	10%

Liquid limit for that portion of the fine aggregate passing the No. 40 sieve shall not exceed twenty-five (25) nor shall the plasticity index exceed six.

Construction requirements of the pit run selected surfacing shall be laid down in conformity with the approved typical section. The gravel base course shall be placed in uniform thickness of twelve (12) inches and compacted to ninety-five (95) percent of the maximum dry density as determined by AASHTO Designation T-180. If water is needed to facilitate compaction and bonding of the material, it shall be applied. The subgrade shall be finished within a tolerance of three-quarters (3/4) of an inch measured as a vertical ordinate from the face of a ten foot (10') straight edge.

TABLE 4.

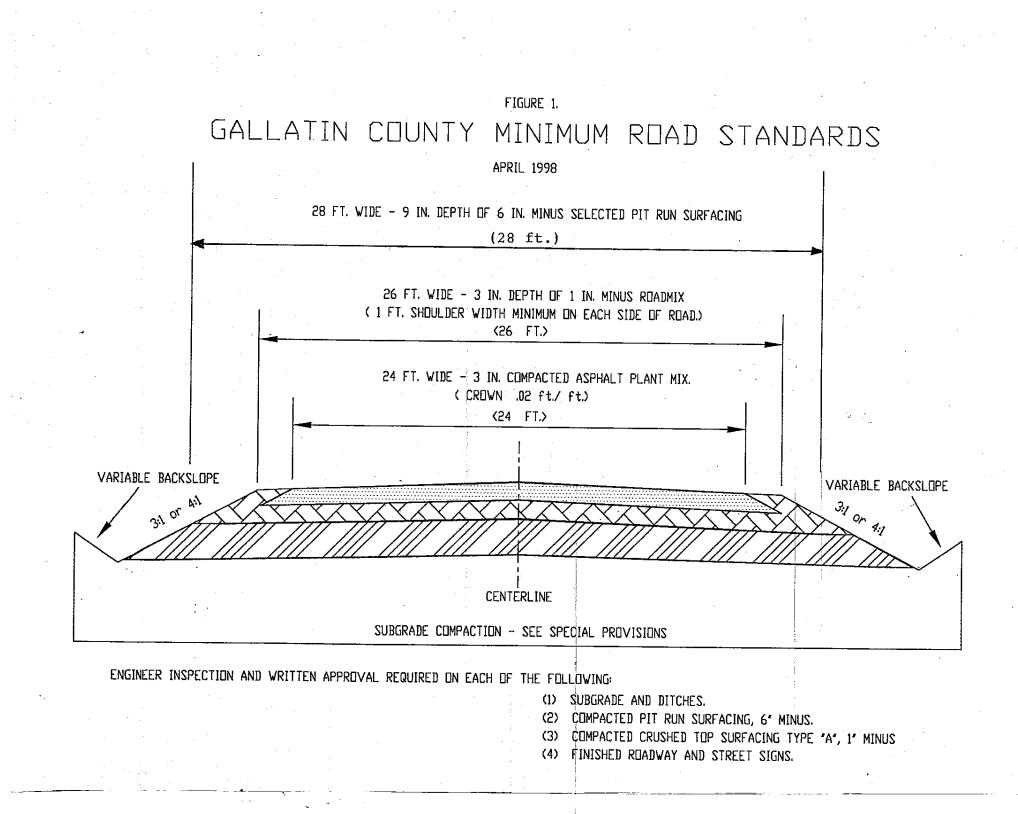
CRUSHED TOP SURFACING TYPE ~A~			
Table of Gradations			
Passing	Grade 1	Grade 2	Grade 3
1 inch sieve	100%		
3/4 inch sieve		100%	
1/2 inch sieve			100%
No. 4 sieve	40-70%	40-70%	40-70%
No. 10 sieve	25-50%	25-50%	25-50%
No. 200 sieve	5-10%	5-10%	5-10%

The aggregate for all grades, including added binder or filler, shall meet the following supplemental requirements:

- a. The dust ratio, that portion passing the No. 200 sieve, shall not be greater than two-thirds (2/3) of that portion passing the No. 40 sieve.
 - b. The liquid limit for that portion of the fine aggregate passing the No. 40 sieve shall not exceed 25 nor shall the plasticity index exceed six.
 - c. Compaction of type "A" crushed surfacing shall be accomplished by rolling equipment approved by the engineer--on all crushed top surfacing type "A", these Regulations shall require pneumatic tired rollers of two axle type, straight or oscillating, mounted on rigid frame and provided with a platform or body suitable for ballast and having effective rolling width of not less than four feet, and shall have a minimum working weight capacity of two hundred fifty pounds (250) per inch of tire surface. Tires shall be smooth (no tread) and of equal size and diameter. The material shall be compacted to ninety-five percent (95%) of the maximum dry density as determined by AASHTO Designation T-180. If water is needed to facilitate compaction and bonding of the material, it shall be applied. The surface course shall be finished within a tolerance of one-half inch (1/2") measured as a vertical ordinate from the face of a ten foot (10') straight edge.
4. Road Signs: Road signs of the size, shape, and height as approved by the County, shall be placed at all intersections by the subdivider or a cash bond covering the cost of purchase and installation of the signs shall be turned over to the County before final acceptance of any roads. All road construction plans for subdivisions shall contain a signage plan.
5. Road Sign Standards: Location of road signs shall be designated on road plans, which are submitted for review and approval. All plans shall be consistent with the MUTCD current edition.
- a. Posts. Posts shall be treated or cedar 4"x4" installed 30 inches deep and minimum seven feet to the bottom of the signage. All mounting hardware shall be die cast of No. 380 Alloy with tensile strength of 49,000 psi with excellent resistance to corrosion. The brackets shall have two angled gussets, or ribs on each side for extra strength. All sets of brackets shall be tapped and drilled for 10 each five-sixteenth inch (5/16") zinc dichromate placed Allen-type set screws having self-locking saw tooth ends.

- b. Signs. All sign blanks as specified: all nine (9") inch wide by twenty-four (24"), thirty (30"), or thirty-six inch (36") long signs of either .08 inch flat aluminum with short radius rounded corners or of .08 inch to .10 inch extruded aluminum with heavy boarders. All blanks to be coated with engineer grade green Scotchlite or equivalent reflective surface. All letters in six inch (6") white Scotchlite or equivalent reflective surface.

FIGURE 2. GALLATIN COUNTY MINIMUM ROAD STANDARDS



Engineer inspection and written approval required on each of the following:

1. Subgrade and ditches.
2. Compacted pit run surfacing, 6 in. minus.
3. Compacted crushed top surfacing, Type "A", 1 in. minus.
4. Finished roadway and street signs.

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